

A Study to Assess Level of Knowledge and Practice Regarding Safe Handling of Sharp Waste among Fourth Class Workers at Selected Hospitals, Kanpur, U.P.

M. Raghavendran¹, S. Andal¹, Anshika Gupta², Neelam Singh², Km Rakhi²

¹Professor, ²Student Nurses, PBBSC (N),

^{1,2}Rama College of Nursing, Kanpur, Uttar Pradesh, India

ABSTRACT

The fourth class workers spend maximum time in the ward than any other member of health team. It increases their exposure and risk to the hazards present in the hospital environment mainly related sharp waste and these are causing serious health problems. Objectives of the study are assess the level of knowledge regarding, handling of sharp waste, assess the level of practice regarding handling of sharp waste, associate the level of knowledge and practice regarding handling of sharp waste with selected demographic variables, correlate the level of knowledge with practice. In this research study, the research approach was survey approach, Survey research design was used. The population was fourth class workers were selected by purposive sampling technique. The sample size was 40. The structured questionnaire was used to collect data regarding handling of sharp waste. Result of the study was the majority of fourth class workers had moderate knowledge (55.0%), while 32.5% has inadequate knowledge and only 12.5% workers had adequate knowledge regarding safe handling of sharp waste. Because of majority of level of knowledge score is moderate. With Practice the majority of fourth class workers had inadequate level of practice (70.0%), while only 30.0% workers had adequate level of working regarding safe handling of sharp waste. Because of the majority of result of practice score is inadequate. The total mean knowledge score (11.9) was higher than the mean practice score (4.25). The study concludes that most of the workers having moderate knowledge and practice. There is no significant between knowledge and practice with demographic variables, and there is positive correlation between knowledge and practices.

KEYWORDS: Assess, Knowledge, Practice, Sharp waste, fourth class worker

INTRODUCTION

Substance which is discarded after primary use, or is no longer useful is waste. Waste is produced everywhere e.g. domestic waste, industrial waste, biomedical waste etc. A waste which is produced during or after diagnosis, treatment, biomedical research is called biomedical waste.

Biomedical waste refers to any solid, fluid or liquid waste which is generated during laboratory findings, treatment of patient etc. It includes human anatomical, animal and microbiological waste, biotechnological waste, sharp waste, discarded medicines and cytotoxic drugs, chemical waste etc¹.

According to Indian society of Hospital waste management, the quantum of waste generated in India is estimated to be 1kg to 2kg per bed in hospital and 600 gm per bed in general practitioner's clinics out of which 5-10% consists of hazardous infection waste.

According to WHO report (2018) on health care was:

Total amount of waste generated by health care activities is about 85% is generally non-hazardous waste. Remaining 15% is included hazardous materials that are infectious,

toxic or radioactive. 16 billion injections are administered worldwide every year but not all of the needles and syringes are discarded properly after use.²

A number of health risks that are produced by biomedical waste include many of injuries, toxic exposure, chemical burns, pollution, thermal injuries, radiation burn etc. Sharp waste materials include needles, hypodermic needles, scalpel, blades, broken glass etc. They come under highly hazardous healthcare waste that needs a proper disposal method³.

According to WHO report on sharp waste related to health hazards:

1. In 2010, unsafe injections were still responsible for as many as 33800 new HIV infections, 1.7 million Hepatitis B infections and 3,15,000 Hepatitis C infections
2. A person who experiences one needle stick injury from a needle used on an infected source or patient has risk of 30%, 1.8% and 0.3% respectively of becoming infected with HBV, HCV and HIV.
3. In 2015, a joint WHO/UNICEF assessment found that just over half (58%) of sampled facilities from 24

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countries had adequate system in place for the safe disposal for healthcare waste ⁴.

In general, sharp waste management is a major problem in most developing countries due to its ever growing and endless generation. Though sharp waste constitutes a small fraction of the solid medical waste, the potential environment and health hazards could be deteriorious is not properly handled. Syringes and needles are of particular concern because they constitutes an important part of the sharp waste and often are contaminated with body fluids from patients (Pruss-Ustin et al., 2003). In Tanzania however much attention has been paid to tertiary and secondary health care facilities located in urban areas where financial and human resources are more readily available, with limited efforts made to set up sharps waste management plan for fourth class workers. In particular, the management of sharp waste from mass and routine injection activities remains problematic as significant quantities of disposable or auto disposable syringes and needles are generated (WHO, 2006) ⁵.

Some hospital waste generated are too hazardous to be treated negligently and if any carelessness is followed by the management of these waste it is a hospital that tends to spread infection and contamination of entire living environment prevailing in hospital and the delay in the recovery and over burden for weak patients⁶. It affects the most of the patient's survival and also generates health hazards to working personnel in and around the hospital environment.

Fourth class workers play a vital role and imparting health services at all levels, vice prevention/protection, promotion and treatment. Their level of awareness regarding sharp waste management can go a long way towards safe disposal of hazardous sharp waste and protect the community from its various adverse effects.

NEED FOR THE STUDY

The fourth class workers spend maximum time with patients in the ward than any other member of health team. It increases their exposure and risk to the hazards present in the hospital environment mainly sharp waste. They need to be well equipped with latest information, skills and practice in managing such waste besides reducing hospital acquired infections to protect their own health. They are also responsible for preventing risk due to waste to the other members of health team and the community⁷.

Many sharp wastes are causing serious public health problems. The main cause is improper disposal of sharp waste which aesthetically damages the environment and however the transmission modes of agents associate with blood borne diseases⁸. Therefore the disposal of sharp waste and their potential healthcare impact are important for public health issues. In the past 10 years, due to the increased numbers of size of health care facilities, medical service and use of disposable products, the generation rate of sharp waste has increased rapidly⁹.

Health care waste in India is receiving a greater attention due to recent regulation of BMW management and handling rules, 2011. The prevailing situation is analysed covering various issues like quantities and preparation of different

constituents of waste, handling treatment and disposal methods in various healthcare units. The waste generation rate ranges between 0.5-2.0 kg / bed / day. It is estimated that annually about 0.33 million tons of healthcare waste is generated in India. The hospital waste consists of bandages, linens and other infectious waste that comprises of 30-35% plastic, 7-10% disposal syringes, 0.3-0.5% glass, 3-5% of other general waste including food waste 40-45%. In general, the waste is collected in mixed form and then transported and disposed of along municipal solid waste. At many places, authorities are failing to install appropriate system for a variety of reasons because of non-availabilities of appropriate technologies, inadequate financial resources and absence of professional training on waste management and one of the reasons is lack of educational programme for workers¹⁰.

Objective:

To assess the knowledge regarding safe handling of sharp waste among fourth class health workers.

To assess the practice regarding safe handling of sharp waste among fourth class workers.

To associate the knowledge and practice regarding safe handling of sharp waste with the selected demographic variables.

To correlate the level of knowledge and practice of fourth class health workers.

Hypothesis

H₁ : There is a significant level of knowledge of fourth class workers regarding safe handling of sharp waste.

H₂ : There is significant level of practice of fourth class workers regarding safe handling of sharp waste.

H₃ : There is a significant association between levels of knowledge and practice of fourth class workers with their selected demographic variables.

H₄ : There is a positive correlation between the level of knowledge and practice of fourth class workers regarding safe handling of sharp waste.

Assumption

It is assumed that Fourth class workers will have less knowledge and practice regarding safe handling of sharp waste.

It is assumed that positive correction between knowledge and practice of fourth class workers regarding safe handling of sharp waste

METHODOLOGY

Research approach: Survey approach was used in this study.

Research design: Non experimental survey design was used in this study.

Variables

Research Variables: Knowledge and practice regarding handling of sharp waste among fourth class workers.

Demographic Variables: Age, gender, religion, educational status, year of experience and area of working.

Sample: Fourth class workers of selected Hospitals, kanpur

Sample size: 40 fourth class workers were selected as samples.

Sampling technique: Purposive sampling technique was in this study.

Description of Tool:

A structured knowledge questionnaire was prepared and used to assess the knowledge regarding handling of sharp waste on 30 questions.

Part-1: Consists of questions based on demographic data such as age, gender, religion, educational status, year of experience, area of working.

Part-2: Closed ended Multiple choice questionnaire items pertaining knowledge regarding sharp waste management.

Part-3: Checklist for assess the practice on sharp waste management.

Range of scoring:

For knowledge

To assess the level of knowledge regarding sharp waste management of fourth class workers was measured in terms of knowledge score. The score for correct response is 1 and for incorrect response is 0. Total score for the study was **20**. The level of knowledge score was classified as below:

Table no.1

S. No.	Level of Knowledge	Score Range	Percentage
1	Inadequate knowledge	0-10	0-50%
2	Moderate knowledge	11-15	55-75%
3	Adequate knowledge	16-20	80-100%

For practice

To assess the level of practice regarding sharp waste management of fourth class worker was measured in terms of practice score. The score for **Yes** response is 1 and for **No** response is 0. Total score for the study was **10**. The level of practice score was classified as below:

Table no. 2

S. No.	Level of Practice	Score	Percentage
1.	Inadequate practice	1 – 5	0-50%
2.	Adequate practice	6 – 10	55-100%

RESULT

The results were distributed as following sections:

Section A : Percentage distribution of level of knowledge on handling of Sharpwaste.

Section B : Percentage distribution of level of practice on handling of Sharpwaste.

Section C : Associate the level of knowledge ad practice with demographic variables.

Section D : Correlate the level of knowledge and practice.

Section: A

Table no.3 Level of Knowledge score on Sharp waste among fourth class workers

S No.	Level of knowledge	Frequency	Percentage
1.	Inadequate knowledge	13	32.5%
2.	Moderate knowledge	22	55%
3.	Adequate knowledge	05	12.5%
	Total	40	100.00%

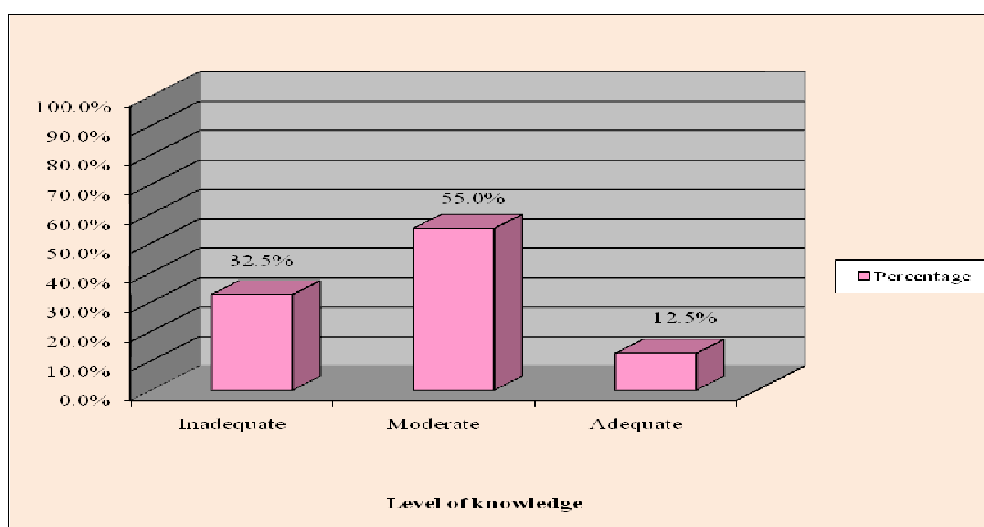


Fig 1: Bar Diagram shows the level of knowledge on Sharp waste management

(Table no. 3 Fig no.1) Represent that the majority of fourth class workers had moderate knowledge (55.0%), while 32.5% has inadequate knowledge and only 12.5% workers had adequate knowledge regarding safe handling of sharp waste. Because of majority of level of knowledge score is moderate so here H_1 is accepted.

Section: B

Table no. 4 Practice score distribution

Serial No.	Level of Practice	Frequency	Percentage
1.	Inadequate practice	28	70%
2.	Adequate practice	12	30%
	Total	40	100.00%

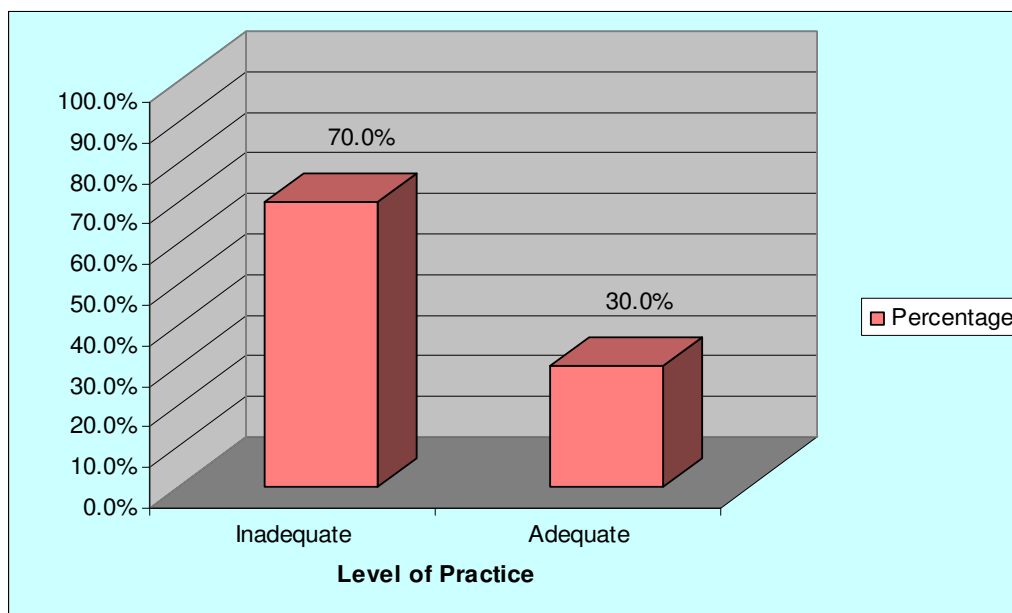


Fig 2: Bar Diagram Shows the level of Practice on Sharp Waste Management

(Table no. 4 fig no.2) represent that the majority of fourth class workers had inadequate level of practice (70.0%), while only 30.0% workers had adequate level of working regarding safe handling of sharp waste. Because of the majority of result of practice score is inadequate here H_2 is rejected.

Table no.5 mean and standard deviation of knowledge and practice:

Variable	Mean	SD
Knowledge	11.9	3.85
Practice	4.25	2.27

The above table shows that the overall mean of the knowledge score is 11.9 and practice score is 4.25 and SD of the knowledge score is 3.85 and practice score is 2.27.

Section: C: Association between level of knowledge and practice with selected demographic variables:

There is no significant association between level of knowledge and practice of fourth class workers with their selected socio demographic variables at 0.05 level of significance, so H_3 is rejected.

Section: D

Table no.6: Correlate the level of knowledge and practice regarding safe handling of sharp waste among fourth class workers.

	'r' value	Correlation
Correlation between level of knowledge and practice	0.935	Positive

Coefficient of correlation analysis between knowledge and practice show **positive correlation** knowledge and practice scores. It seems that when knowledge increase the practice also improves. Hence H_4 is accepted.

NURSING IMPLICATIONS:

The implications of the study can be seen in the area of nursing services, nursing education, nursing administration and nursing research.

Nursing Service:

The implications of the nursing services are that the nurses play an important role in the promotive, preventive and curative aspect in the health care system. The finding of the study can be disseminated to motivate nurses to plan teaching programme for fourth class worker regarding safe handling of sharp waste.

Nursing Administration:

Nurse administration can allocate resources and provide motivation for further study regarding safe handling of sharp waste

Nursing Education:

The nurse has an important role in giving education. Teachers can find the need of knowledge regarding sharp waste management among fourth class workers to update

the knowledge and practice of the fourth class workers in clinical setting.

Nursing Research:

Nursing practice need to be based on scientist knowledge because nurses are facing lots of challenges while delivering health services to patients. The nurse has to encourage further studies regarding safe handling of sharp waste and its usefulness. The study finding help to motivate and initiate further research related to knowledge and practice on sharp waste management

Conclusion:

The study was concluded that 55% of sample had moderate knowledge score, mean 11.9 and SD 3.85 respectively H_1 is accepted. Practice score shows that 70% of sample had inadequate practice score, mean 4.25 and SD 2.27 respectively H_2 is rejected. There was no significant association between the knowledge and practice with their selected demographic variables during coefficient and correlation (r) of knowledge and practice score of fourth class workers shows that ($r = 0.935$) there were positive relationship between knowledge and practice scores.

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